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Case Report

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A large pericardial cyst causing persistent chest tightness and dyspnea: a case report

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ABSTRACT

Pericardial cysts are a rare cause of mediastinal masses with an incidence of about 1 in 100,000 patients. Most of the cases are secondary to congenital incomplete fusion of the pericardial sac. More than two-thirds of pericardial cysts are located in the right cardiophrenic angle. Over 50% of pericardial cysts are asymptomatic and discovered incidentally during thoracic imaging such as chest X-ray, computed tomography (CT) scans and transthoracic echocardiograms. Symptomatic cases commonly present with non-specific symptoms such as dyspnea, chest pain, and persistent cough. A 48-year-old female was referred for assessment of shortness of breath and atypical chest tightness for several years. The echocardiography revealed a large cystic-appearing mass presenting with slight compression of the right-atrium. A cardiac CT scan and magnetic resonance imaging (MRI) scan were performed, confirming the presence of a large pericardial cyst with no signs of complications like tamponade or pericarditis. As the patient had symptoms and cyst had compressive effects, surgical resection was done.

Keywords: symptomatic pericardial cyst, incidental pericardial lesion, pericardial cyst management

INTRODUCTION

Pericardial cysts (PCs) are a rare benign mass of the mediastinum with an incidence of about 1 in every 100,000 persons.[1] Most cases are congenital but can also be acquired after cardiothoracic surgery, inflammatory conditions or following trauma.[2] Pericardial cysts are most commonly found in the right cardiophrenic angle (70% of cases) followed by the left cardiophrenic angle (22%) and other parts of the mediastinum (8%).[3] Typically found in the third or fourth decade of life, PCs have no gender predilection in their prevalence.[4]

More than 50% of pericardial cysts are asymptomatic and often diagnosed incidentally during chest X-rays, CT scans, or echocardiography.[2,3] In symptomatic cases, the most commonly reported symptoms are dyspnea, chest pain, and persistent cough.[2,3] Symptoms mostly arise usually due to compression of adjacent structures like the lungs or right atrium.

In our study, we illustrated an incidental finding of the pericardial cyst in a patient who presented with shortness of breath and atypical chest tightness for several years.

CASE

A 48-year-old female presented to the gynecology department for diagnostic laparoscopy due to chronic pelvic pain and frequent vaginal infections. An abdominal ultrasound detected bilateral ovarian cysts and endometriosis, prompting a cardiac evaluation prior to laparoscopy. The patient was referred for assessment of shortness of breath and atypical chest pain persisting for several years. Physical examination was unremarkable, and an ECG showed normal sinus rhythm. A chest X-ray revealed a well-defined, oval mass in the right cardiophrenic angle. Transthoracic echocardiography (TTE) showed preserved systolic function without regional wall motion abnormalities or significant valve disease but revealed a cystic-appearing mass causing slight compression of the right atrium.

A chest CT scan showed a cystic formation in the inferior anterior mediastinum measuring 62mm x 40mm with a density of 6 HU.(Figure 1)

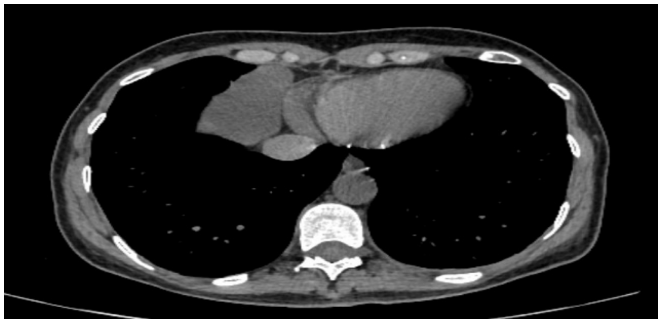

Figure 1. CT chest showing pericardial cyst

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Further evaluation with cardiac magnetic resonance (CMR) revealed an ovoid pericardiac structure in the inferior anterior mediastinum at the right cardio phrenic angle, with dimensions of 82 mm x 34 mm x 33 mm (APxLLxSI).

In cine-MR images (Figure 2a) the cyst is presented with clear contours, and a generally thin capsule attached to the corresponding pericardium above the right atrium, with homogeneous isointense/slightly hyperintense internal structure in relation to the blood. Near the lateral face inside the cystic formation, the presence of a slightly thickened longitudinal hypointense structure (about 22 mm) can be outlined, with the pattern of a septum, which encloses a small peripheral space in the shape of a microcyst. T1w image shows hypointense and T2w image homogeneous hyperintense signal (Figure 2b and 2c); the presence of late enhancement (LGE) at the level of the surrounding capsule and lateral paracapsular (inside the structure) (Figure. 2d)

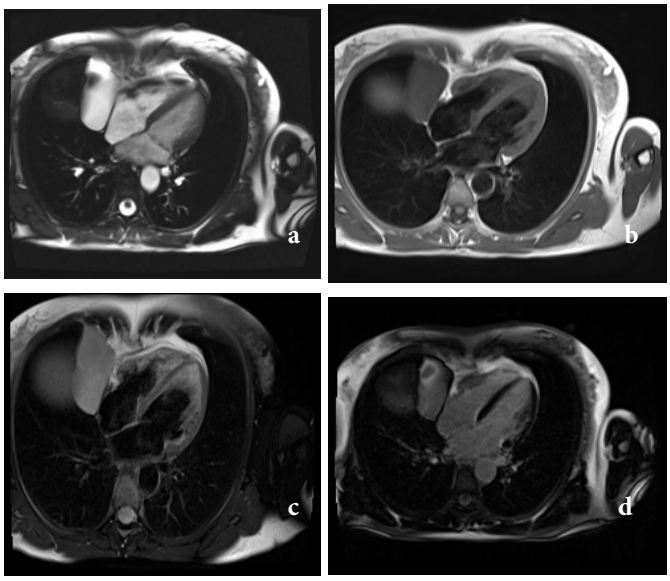

Figure 2. CMR showing pericardial cyst measuring 8.2 x 3.4 x 3.3 cm (a. cine-MR image, b. T1w image, c. T2w image, d. LGE)

Considering the elevated risk of cyst rupture the patient was referred to a cardiac surgeon. After lateral thoracotomy, the pericardium was opened. No fluid or pathologic finding was seen in the pericardium. On the right side and outside the pericardium, a pericardial cyst was totally excised. The pathologic report confirmed the diagnosis of pericardial cyst. (Figure 3 and 4).

Figure 3. The surgical removal of pericardial cyst

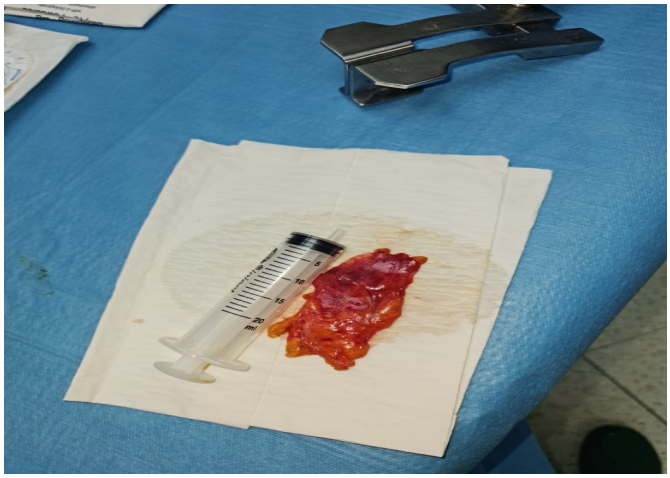

Figure 4. The surgical removal of pericardial cyst

DISCUSSION

Pericardial cysts are infrequent benign causes of mediastinal masses commonly asymptomatic.[5] Symptomatic cases typically arise from complications such as compression, inflammation, hemorrhage, and rupture.[6] A patient may experience dyspnea, chest pain, or palpitations in the event the cyst causes cardiac compression or irritation of the nearby structures. Our patient had persistent chest tightness and dyspnea for several years. However, the presence of a pericardial cyst in a typical location or, less frequently, in an unusual location, still poses a diagnostic challenge in distinguishing it from other intracardiac or mediastinal benign or malignant lesions. Further imaging studies are necessary for accurate diagnosis.

CT scans and especially cardiac magnetic resonance with its unique capabilities of tissue characterization are excellent for differentiating pericardial cysts from other mediastinal masses.[7]

Management decisions should be based on the presence or absence of symptoms, cyst size, hemodynamic state, and compression of important structures. Asymptomatic patients generally undergo conservative treatment depending on the location and size of cyst. If the patient is asymptomatic and the cyst is small, serial transthoracic echocardiograms are sufficient. If the patient is symptomatic and/or the cyst is large, resection is considered.

CONCLUSION

Even though PCs are a rare occurrence, physicians should not neglect to include them in their differential diagnosis for patients presenting with chest tightness, shortness of breath, or other nonspecific symptoms. Further investigations are crucial for differentiating simple pericardial cysts from other pericardial lesions. Based on the symptoms, size, and compression effect of the cyst, management may vary from serial echocardiogram to aspiration or surgical resection. Conservative management with regular echocardiographic follow-up is recommended in asymptomatic patients. However, surgical excision is considered a choice in symptomatic cases.

ETHICAL DECLARATIONS

Informed Consent

Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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